

## Abstract

This research aims to investigate how to utilize the Internet of Things (IoT) paradigm at the shop floor level (by providing real-time energy consumption data) to increase energy awareness and efficiency at discrete manufacturing companies.

- Providing a systematic way (i.e. a methodology) to adopting IoT technology at shop floor to increase energy consumption awareness and then improve energy efficiency of production systems.
- Understanding of energy-efficient production management practices that are enhanced and enabled by the Internet of Things technology. In addition, defining the benefits that can be obtained thanks to adopting such management practices.
- Minimizing energy consumption cost during production processes with consideration of the fluctuations in energy prices (i.e., hourly based).
- Amount of energy consumed, its cost, and CO2 emitted are defined at operation level
- Making it possible for factories to show their stakeholders how much CO2 is emitted when producing the product, with consideration to energy sources.

